

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of all claims in the application.

Listing of Claims

Claims 1-59 (canceled)

60. (previously presented) A method of determining the identification of nucleotide(s) at a first detection position in a first domain of a target sequence, said target sequence comprising said first domain and a second domain, said method comprising:

a. providing an electrode with a covalently attached capture probe, wherein said capture probe has a sequence substantially complementary to said second domain of said target sequence;

b. contacting said electrode with:
(i) said target sequence;
(ii) a first label probe substantially complementary to said first domain, comprising a first nucleotide at an interrogation position and a first electron transfer moiety (ETM) with a first redox potential;

(iii) a second label probe substantially complementary to said first domain, comprising a second nucleotide at said interrogation position and a second ETM with a second redox potential;

under conditions wherein if said nucleotide at said interrogation position is perfectly complementary to said detection position, hybridization of said probe(s) occurs; and

c. detecting the presence of said first and/or second ETM to determine the nucleotide(s) at said detection position.

61. (previously presented) The method of Claim 60 wherein said method further comprises contacting said electrode with a third label probe substantially complementary to said first domain, comprising a third nucleotide at said interrogation position and a third ETM with a third redox potential.

62. (previously presented) The method of Claim 61 wherein said method further comprises contacting said electrode with a fourth label probe substantially complementary to said first domain, comprising a fourth nucleotide at said interrogation position and a fourth ETM with a fourth redox potential.

63. (previously presented) The method of Claim 60 wherein said electrode comprises an array of capture probes, each substantially complementary to a second domain of a different target sequence.

64. (previously presented) The method of Claim 60 wherein said first label probe contains a plurality of first ETMs.

65. (previously presented) The method of Claim 60 wherein said second label probe contains a plurality of second ETMs.

66. (previously presented) The method of Claim 60 wherein said electron transfer moieties comprise a transition metal complex.

67. (previously presented) The method of Claim 66 wherein said transition metal complex comprises a metallocene.

68. (previously presented) The method of Claim 67 wherein said metallocene is a ferrocene.

69. (previously presented) The method of Claim 67 wherein said metallocene is a ferrocene derivative.